CLAIMS

1. A control system for model trains, comprising:

a controller for accepting control commands from a user, the controller including a controller transmitter that transmits control data at a UHF radio frequency of at least 400 MHz; and

a train including a train receiver for receiving the control data from the controller.

2. The control system of claim 1, wherein the train further includes a train transmitter for transmitting train data, and wherein the controller further includes a controller receiver for receiving the train data from the second transmitter.

3. The control system of claim 2, wherein the train data includes data relating to at least one of signal strength of the control data, speed of the model train, engine identification, and model train location.

4. A model train drive motor assembly, comprising:

a drive motor including a motor flywheel and a slotted wheel mounted on and rotating with the motor flywheel, said slotted wheel including a plurality of protrusions defining the slots;

an optical motor speed sensor with an emitter for emitting a light beam and a receiver for receiving the light beam, wherein the protrusions of the slotted wheel are arranged to interrupt the light beam as the slotted wheel rotates to produce electrical pulse which indicate motor rotation speed;

a microprocessor for receiving the electrical pulses and determining the actual speed of the train; and

a radio receiver for receiving commands from a remote controller.

5. The control system of claim 2, wherein the train further includes a model train drive motor assembly, the motor assembly including

a drive motor including a motor flywheel and a slotted wheel mounted on and rotating with the motor flywheel, said slotted wheel including a plurality of protrusions defining the slots;

a optical motor speed sensor with an emitter for emitting a light beam and a receiver for receiving the light beam, wherein the protrusions of the slotted wheel are arranged to interrupt the light beam as the slotted wheel rotates to produce electrical pulse which indicate motor rotation speed; and

a microprocessor for receiving the electrical pulses and determining the actual speed of the train.

6. The control system of claim 5, wherein the control data includes a speed setting, wherein the train receiver transmits the speed setting to the microprocessor, and wherein the microprocessor monitors the actual speed and adjusts voltage provided to the drive motor such that the actual speed matches the speed setting.

7. The control system of claim 6, wherein the control system includes a plurality of trains, and the controller includes a plurality of soft keys for controlling features specific to a particular train.

8. The control system of claim 7, wherein the controller further includes a display screen to display functions associated with the soft keys arranged below the display screen.

9. The control system of claim 6, wherein the controller includes a microphone and means for temporarily storing a voice recording, said controller providing the voice recording to the train as the control data.

10. The control system of claim 6, wherein the control system further comprises a track layout and position indicators arranged along the track layout for transmitting a signal to the train as the train passes the position indicators.

11. The control system of claim 11, wherein the train includes a recording that can be activated by the signal from one of the position indicators.

12. The control system of claim 10, wherein the indicators are at least one of bar code labels and infrared emitters.

13. The control system of claim 10, wherein the track layout includes track accessories associated with the position indicators that are activated as the train passes the position indicators.

14. The control system of claim 6, wherein the second transmitter on the train transmits the actual speed of the train to the controller.

15. The control system of claim 6, wherein the train includes means for providing a chuffing sound operated synchronously with the electric pulses from the drive motor.

16. The control system of claim 11, wherein the train includes means for associating the train with an engine type, and the recording played by the train depends on the engine type.

17. A model train drive motor assembly for driving a model train at a speed setting, comprising:

a drive motor including a motor flywheel and a slotted wheel mounted on and rotating with the motor flywheel, said slotted wheel including a plurality of protrusions defining the slots;

an optical motor speed sensor with an emitter for emitting a light beam and a receiver for receiving the light beam, wherein the protrusions of the slotted wheel are arranged to interrupt the light beam as the slotted wheel rotates to produce electrical pulse which indicate motor rotation speed; and

a microprocessor including a motor drive circuit for receiving the electrical pulses and determining the actual speed of the train, wherein the microprocessor monitors the actual speed and adjusts voltage provided to the drive motor such that the actual speed matches the speed setting.

18. The model train drive motor assembly of claim 17, wherein the microprocessor stores a table to determine an amount of drive motor voltage and an amount of reserve voltage.

19. The control system of claim 10, wherein each of the position indicators can be associated with an ID assigned by the user.

20. The control system of claim 19, wherein the track layout includes track switches, wherein one of the position indicators immediately precedes each of the track switches to initiate the respective track switch, and wherein the ID of the position indicator corresponds to the respective track switch.